

CLAIMS

1. A method for manufacturing a thin film integrated circuit comprising:
selectively forming a release layer over an insulating substrate,
5 forming a plurality of thin film integrated circuits over the release layer;
exposing the release layer by forming an opening portion at a boundary
between the thin film integrated circuits adjacent to each other among the plurality of
the thin film integrated circuits;
introducing gas or liquid including halogen fluoride to the opening portion to
10 remove the release layer wherein the thin film integrated circuit is fixated to the
insulating substrate;
transposing the plurality of thin film integrated circuits to a first substratum
having an adhesion surface;
separating the insulating substrate from the plurality of thin film integrated
15 circuits; and
transposing the thin film integrated circuit to a second substratum having an
adhesion surface with a higher adhesion strength than that of the adhesion surface of the
first substratum.
- 20 2. The method according to claim 1, wherein the first substratum comprises
silicon resin or fluorocarbon resin.
3. The method according to claim 1, wherein the first substratum is a roll
having silicon resin or fluorocarbon resin thereon
25
4. The method according to claim 1, wherein the second substratum is a
flexible substrate or a protective film.
5. The method according to claim 1, wherein an antenna is formed over the
30 second substratum.

6. The method according to claim 1, wherein the plurality of thin film integrated circuits comprise a semiconductor film with a thickness of 0.2 μm or less.

5 7. The method according claim 6, wherein the semiconductor film is crystallized by laser irradiation.

8. A method for manufacturing a thin film integrated circuit comprising:
selectively forming a release layer over a substrate,
10 forming a plurality of thin film integrated circuits over the release layer;
exposing the release layer by forming an opening portion at a boundary
between the thin film integrated circuits adjacent to each other among the plurality of
the thin film integrated circuits;
introducing gas or liquid including halogen fluoride to the opening portion to
15 remove the release layer wherein the thin film integrated circuit is fixated to the
insulating substrate;
transposing the plurality of thin film integrated circuits to a first substratum
having an adhesion surface;
separating the substrate from the plurality of thin film integrated circuits; and
20 transposing the thin film integrated circuit to a second substratum having an
adhesion surface with a higher adhesion strength than that of the adhesion surface of the
first substratum,
wherein the substrate comprises a first region on which the release layer is
formed and a second region on which the release layer is not formed, and
25 wherein the plurality of thin film integrated circuits are fixated to the substrate
in the second region.

9. The method according to claim 8, wherein the first substratum comprises
silicon resin or fluorocarbon resin.

10. The method according to claim 8, wherein the first substratum is a roll having silicon resin or fluorocarbon resin thereon

11. The method according to claim 8, wherein the second substratum is a flexible substrate or a protective film.

12. The method according to claim 8, wherein an antenna is formed over the second substratum.

13. The method according to claim 8, wherein the plurality of thin film integrated circuits comprise a semiconductor film with a thickness of $0.2\ \mu\text{m}$ or less.

14. The method according claim 13, wherein the semiconductor film is crystallized by laser irradiation.

15

15. A method for manufacturing a thin film integrated circuit comprising:
selectively forming a release layer over a substrate,
forming a plurality of thin film integrated circuits over the release layer;
exposing the release layer by forming an opening portion at a boundary
between the thin film integrated circuits adjacent to each other among the plurality of
the thin film integrated circuits;
introducing gas or liquid including halogen fluoride to the opening portion to
remove the release layer;
transposing the plurality of thin film integrated circuits to a first substratum
having an adhesion surface;
separating the substrate from the plurality of thin film integrated circuits;
transposing the thin film integrated circuit to a second substratum having an
adhesion surface with a higher adhesion strength than that of the adhesion surface of the
first substratum; and
removing the first substratum.

16. The method according to claim 15, wherein the first substratum comprises silicon resin or fluorocarbon resin.

5 17. The method according to claim 15, wherein the first substratum is a roll having silicon resin or fluorocarbon resin thereon

18. The method according to claim 15, wherein the second substratum is a flexible substrate or a protective film.

10 19. The method according to claim 15, wherein an antenna is formed over the second substratum.

20. The method according to claim 15, wherein the plurality of thin film
15 integrated circuits comprise a semiconductor film with a thickness of 0.2 μm or less.

21. The method according claim 20, wherein the semiconductor film is crystallized by laser irradiation.

20 22. A method for manufacturing a thin film integrated circuit comprising:
selectively forming a release layer over a substrate,
forming a plurality of thin film integrated circuits over the release layer;
forming a first opening portion at a boundary between the thin film integrated
circuits adjacent to each other among the plurality of the thin film integrated circuits;
25 transposing the plurality of thin film integrated circuits to a first substratum
having an adhesion surface, the first substratum having a second opening portion;
after transposing the plurality of thin film integrated circuits to a first
substratum, introducing gas or liquid including halogen fluoride to the first and second
opening portions to remove the release layer;
30 separating the substrate from the plurality of thin film integrated circuits; and

transposing the thin film integrated circuit to a second substratum having an adhesion surface with a higher adhesion strength than that of the adhesion surface of the first substratum,

wherein the first opening portion is overlapped with the second opening
5 portion.

23. The method according to claim 22, wherein the first substratum comprises silicon resin or fluorocarbon resin.

10 24. The method according to claim 22, wherein the first substratum is a roll having silicon resin or fluorocarbon resin thereon

25. The method according to claim 22, wherein the second substratum is a flexible substrate or a protective film.

15

26. The method according to claim 22, wherein an antenna is formed over the second substratum.

27. The method according to claim 22, wherein the plurality of thin film
20 integrated circuits comprise a semiconductor film with a thickness of 0.2 μm or less.

28. The method according claim 27, wherein the semiconductor film is crystallized by laser irradiation.

25

29. A method for manufacturing a thin film integrated circuit comprising:
selectively forming a release layer over a substrate,
forming a plurality of thin film integrated circuits over the release layer;
forming a first opening portion at a boundary between the thin film integrated
circuits adjacent to each other among the plurality of the thin film integrated circuits;
30 transposing the plurality of thin film integrated circuits to a first substratum

having an adhesion surface, the first substratum having a second opening portion;

after transposing the plurality of thin film integrated circuits to a first substratum, introducing gas or liquid including halogen fluoride into the first and second opening portions to remove the release layer;

5 separating the substrate from the plurality of thin film integrated circuits; and

transposing the thin film integrated circuit to a second substratum having an adhesion surface with a higher adhesion strength than that of the adhesion surface of the first substratum,

10 wherein the first opening portion is overlapped with the second opening portion,

wherein the substrate comprises a first region on which the release layer is formed and a second region on which the release layer is not formed, and

wherein the plurality of thin film integrated circuits are fixated to the substrate in the second region.

15

30. The method according to claim 29, wherein the first substratum comprises silicon resin or fluorocarbon resin.

31. The method according to claim 29, wherein the first substratum is a roll
20 having silicon resin or fluorocarbon resin thereon

32. The method according to claim 29, wherein the second substratum is a flexible substrate or a protective film.

25 33. The method according to claim 29, wherein an antenna is formed over the second substratum.

34. The method according to claim 29, wherein the plurality of thin film integrated circuits comprise a semiconductor film with a thickness of 0.2 μm or less.

30

35. The method according claim 34, wherein the semiconductor film is crystallized by laser irradiation.